

Authorized by the Minister of Education.

THE HIGH SCHOOL

DRAWING · COURSE

BY

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INDUSTRIAL DESIGN

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INTRODUCTORY REMARKS.

INDUSTRIAL DESIGNING is literally the application or adaptation of art to industry: the preparation of designs for industrial purposes, and these designs may be for a beautiful vase or the ornamentation to be placed upon it, the cover of a book, an iron gate, a carpet, a wall paper or a handsome article of furniture. Indeed, it would seem that the field in which the designer labors is unlimited and that he must introduce into his works principles of construction as well as of proportion and beauty. This is true, but in order to narrow the subject somewhat, it is supposed for the purposes of this little book that the term is applied only to the preparation of decorations, without having anything to do with the construction of the objects decorated.

When entering upon the study of this subject, as in all similar subjects, we should have before us some standard with which to compare our productions and thereby judge of their excellence, and measure the extent of our improvement.

Unfortunately for us, we have no such standard in modern decoration, as by far the greater number of designs with which our homes are decorated are foreign to all principles of art or beauty. This being the case we must seek elsewhere for our measure, and as very few who will read this are familiar with historic ornament it is deemed advisable to furnish the student with a set of principles upon which the most perfect designs extant are based, and thus put into his hand a measuring rod with which he can measure all decorative work, whether ancient or modern, and judge for himself which is worthy of imitation or rather emulation, and which should be avoided or ignored.

We do not fully realize the injury that has been done by some of the late fashionable styles of decoration, because the matter has not been sufficiently studied. As a general thing, anything that is fashionable is considered by the masses to be beautiful, even if people have to make an effort to smother their inherent good taste to enable them to think or say so. People in their blind trust in and admiration of the designer's works accept with gratitude and admiration whatever he sees fit to give them, and very often what is most admired by the public generally is most truly ugly and vulgar.

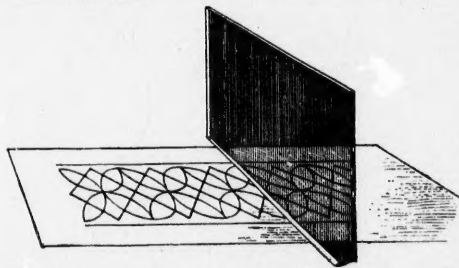
The writer claims that every educated person possesses a natural instinct which if let alone will lead him to a just appreciation and proper choice of the beautiful and true, but false educating influences, by which we are all surrounded, have perverted this instinct until he really has no taste or judgment of his own, or if he has, it leads him to admire what he would otherwise see is not worthy of even his notice. Let it be hoped that our eyes will be opened and that we will all be self-appointed critics, and educate ourselves and others to discriminate between the good and bad in design.

The pupil will find on the third page of the cover the principles upon which all designs should be constructed and which are simplified as much as possible. In connection with them he should apply to each design originated by him a test consisting of three questions. Is it

beautiful? Is it appropriate? Can it be improved by either omissions, alterations or additions? If any improvement can be made, it should be made, and when as perfect as his skill at the time renders possible, the design should be put away to be afterwards used for the purpose of comparing it with subsequent productions and thus showing what progress he is making in his study.

It is not supposed that the work of designing should be made an exercise in freehand drawing any more than is absolutely necessary, and therefore all repetitions of ornamental units should be effected by mechanical means. Having decided on the form of one-half of the unit a piece of tracing paper is placed over it and a tracing made with a soft pencil. This tracing is then laid face down in the proper position and the back rubbed with the thumb nail or some hard, rounded substance. A slight impression is thus left on the paper and when strengthened with the lead pencil leaves the unit perfectly symmetrical. The complete unit can then be treated in the same way until it is repeated the requisite number of times.

Sometimes before proceeding to repeat the unit it is wise to ascertain the effect of its repetition by means of two pieces of looking-glass hinged together by means of a piece of cotton cloth. In the case of a border one of the pieces of glass should be placed upright with its silvered side corresponding either to a line of division of the pattern or a line of symmetry, as shown in the accompanying illustration.



If the unit is to be repeated radiately the looking-glasses can be placed at the proper angle so as to include it. This method of testing the utility of an ornamental form saves much time and well repays any slight trouble and expense in obtaining the looking-glasses. They need be only about three inches wide and four inches long and should be hinged on the short edges.

HIGH SCHOOL DRAWING COURSE.

INDUSTRIAL DESIGN.

If an ornamental design be carefully examined it will, in nearly every case, be found to be made up of one or more ornamental forms used over and over again in some methodical

manner, either to clothe or ornament a geometric arrangement of lines, or to fill a series of geometric planes arranged systematically in respect to one another. It is thus evident that

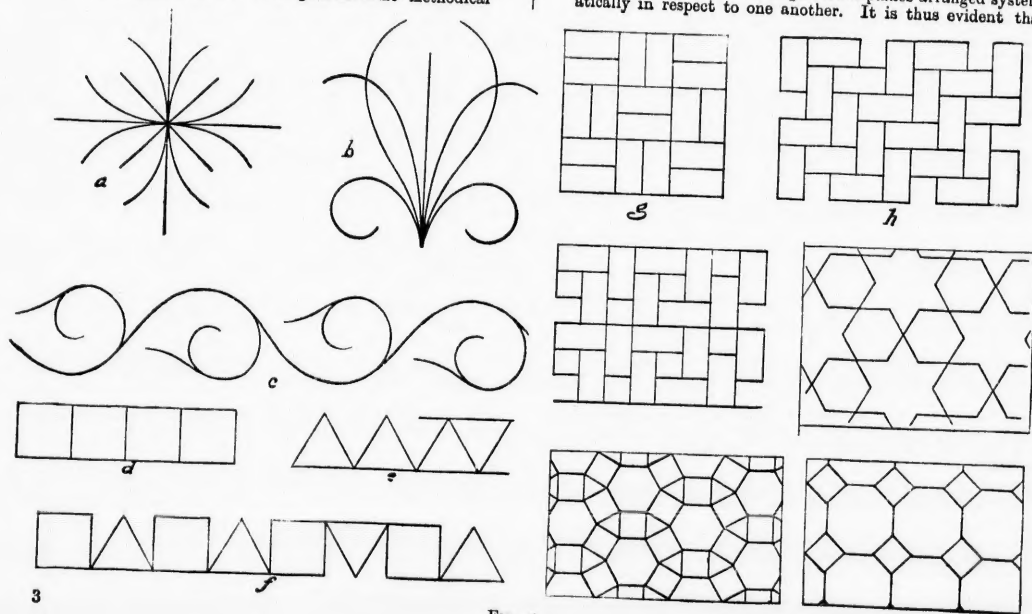


FIG. 1.

in order to commence at the beginning, we must first consider this geometric framework upon which the decorative forms are placed and which serves as a support for them.

These geometric lines or planes must of course be arranged with regard to the kind of ornament to be designed. If for a border they may be placed laterally either in a horizontal, vertical or oblique position. If for a pattern to cover surface or "all over" pattern, they must be arranged so as to completely cover surface without leaving spaces, unless these spaces are uniform as to size, shape and relative position.* If the

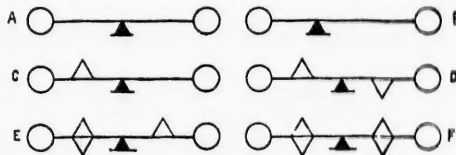


Fig. 2.

ornament is to be isolated, an arrangement of lines symmetrical as to a line or point may answer the purpose. In fig. 1 are given examples which illustrate the matter much better than many words could do. For a symmetrical arrangement of lines about a point, see *a*; about a line, *b*; for an arrangement of lines suitable for a border, *c*; *d*, *e*, and *f*, show how squares or oblongs and triangles may be arranged for a border; and the other illustrations are suggestions for combinations of geometric planes to be used in "all over" designs. Having decided upon the geometric framework of a design, the next thing to decide is how it will be filled or ornamented, and great care should be exercised in the choice of a "unit of repetition," as it is called, as it, with the framework, has much to do with the success or failure of our efforts.

In many of the designs that come under our notice the unit of repetition is symmetrical, that is, it may be divided by a line called the median line or line of symmetry, into two parts similar and similarly placed. It need not, however, be symmetrical, but except in special cases, should be "balanced." These two terms, "symmetrical" and "balanced," need a few words of explanation. They appear to be almost synonymous, but are distinct; thus a symmetrical form is balanced, but a

* The only geometric planes that will completely cover surface by themselves without the use of one or more others, are the equilateral triangle, square and oblong or modifications of them. The student is recommended to experiment with them and discover for himself the innumerable interesting combinations that can be made.

balanced form is not necessarily symmetrical. "Symmetry" relates to the similarity as to position of the parts of a form, and "balance" to the quantity on each side of the median line. The illustration, Fig. 2, will make the distinction clear. The first form A shows a lever supported on a point and having a weight of the same size and shape at the same distance from the centre, on each end. Here the object is symmetrical and balanced, the result of which is perfect rest or repose. In B is shown how both balance and symmetry can be destroyed by moving the fulcrum to one side. In C both balance and symmetry are destroyed by the addition of a weight at one side only. In D the balance, but not the symmetry is restored. In E both are wanting, and in F both are restored.

It will be noticed that there is a sense of uneasiness experienced when looking at B, C and E where both balance and symmetry are wanting; a feeling of only partial satisfaction when looking at D where balance only is present; and a feeling of complete satisfaction when looking at A and F which possess both balance and symmetry. From this it is evident that ornamental forms produce a mental effect either pleasant

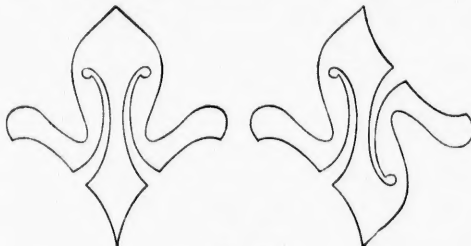


Fig. 3.

or otherwise, and that therefore we should be careful that those we use are appropriate, and calculated to make the impression required. If there be still any doubt of the truth of this, Fig. 3 will be likely to dispel it. Here the difference between symmetry and balance, and the value of each is illustrated. The left hand figure is quite satisfactory and the eye can dwell on it with a certain amount of pleasure, but by inverting the right half as shown, and thus destroying the symmetry, the repose is lost and the eye instinctively wanders about it as if seeking for something which is not present. This may be called a sensation of mild excitement or vigor, and will be further illustrated as the work progresses.

EXERCISE.

In the space below draw combinations of geometric figures suitable for borders and "all over" patterns. If the alternate sides of the principal figure be lengthened, thus changing it into an irregular polygon with alternate sides equal, a pleasing variety of combinations can be made.

The unit of repetition may be very simple, as in Fig. 5, where it is geometric in its character, yet, so far as it goes, quite satisfactory; but in the majority of cases a more elaborate form will be needed, which, if made purely geometrical will be apt to be intricate and uninteresting. For this reason we must look to some other source for suggestions—to nature itself, where we will find an abundance of beautiful forms almost ready to hand. But it will not do to take a leaf or flower just as we find it and copy and use it as a unit of repetition. A natural form is pleasing only so far as it is a perfect representation or picture, and the impossibility or absurdity of combining a number of pictures in order to form an ornament, is apparent. Yet we very often find in our floor and wall decorations attempts at imitations of natural flowers, fruit and

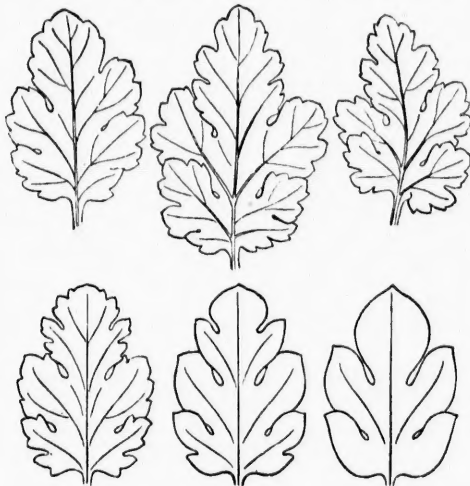


FIG. 4.

foliage, which may be pleasing to some, but are in reality evidences of very bad taste on the part of the designer and his admirers. The processes of manufacture a carpet or wall paper

has to undergo, are such as to preclude all possibility of anything but a suggestive treatment of natural forms. If the results were satisfactory there would be some excuse for using such forms, but when far better results are obtained with much less trouble we must admit that such patterns involve a waste of time and skill, not to say anything of the wrong done to the public taste.

The ancients, whose works are our guide as to beauty and truth, invariably used natural forms *conventionally treated*, that is until art with them was on the decline, and we find that with its decline they introduced a larger proportion of natural forms. At present our productions in ornament do not begin to compare with those of the Moors, Romans, Greeks or Egyptians, and until we can at least produce something which is even moderately good, we can do no better than follow in the footsteps of our masters, not servilely imitating them, but selecting from their works what is best, working on the principles that guided them, and impressing our work with the stamp of our individuality, adapting it to the circumstances as to climate and civilization in which we are placed.

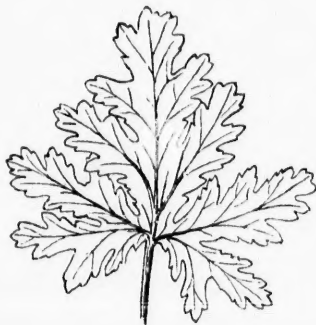
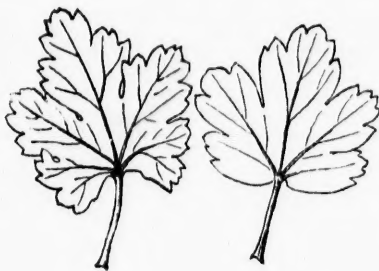
Another reason why natural forms should not be used is that, being unsymmetrical, it is almost impossible to obtain with their use perfect repose without great difficulty, and hence we would be hampered at the very outset with a form not the one best adapted to our purpose.

Having decided that a natural form needs to be changed before being used for ornamental purposes we must decide what change shall be made. It should, first of all be symmetrical; it should retain all the characteristics of the natural form; all minor details should be omitted. Our form, whether leaf or flower, now becomes our standard or representative of every one of its class without being in any way an imitation, and is called a conventional form of the object which supplies us with our motive.

As an illustration of conventionalizing, three natural chrysanthemum leaves and three different conventional forms are given in Fig. 4. The leaves are all pinnately five lobed with a crenate margin. These common peculiarities are retained in the conventional forms, excepting the third, which hardly suggests anything more than a leaf of some sort. Its form approaches to the geometric. The first thing to be done in conventionalizing an object, such as a leaf, is to select the most satisfactory natural form and arrange it symmetrically about a line, simplifying it slightly. If this be too elaborate, some of the marginal indentations may be omitted as in the second conventional form shown in Fig. 4, and if necessary this may be still further simplified as in the third form shown.

EXERCISE.

Below, the pupil will find sketches of natural leaves of the gooseberry and scented geranium which he is asked to conventionalize. If the page of introductory remarks has been read he will understand, when one-half of the conventional form is decided on, how to repeat it on the other side of the line of symmetry. Two or more conventional forms of each should be attempted.



As a rule the simpler a conventional form is made the more satisfactory it will be, always providing that its size is not so great as to cause its simplicity to convey an idea of bareness.

As has been stated before, nearly all ornament is composed of one or more units of design "repeated" in a methodical manner. They can be repeated in different ways, laterally and radiately, regularly and alternately. These are shown in Fig. 5. The first is an example of regular lateral repetition, the second alternate lateral, the third regular radiate, and the fourth alternate radiate. In the first three there is only one unit of repetition, and two in the fourth.

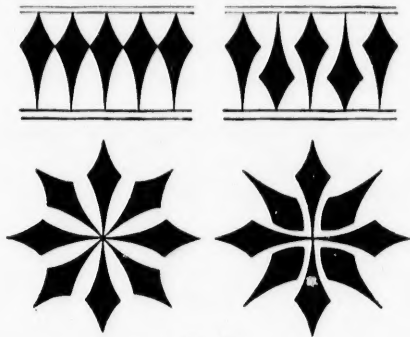


Fig. 5.

Having decided upon our geometric framework and unit of repetition, we must next say how it is to be repeated. Here we have to face the fact that the mode of repetition adopted will have very much to do with the success of the resulting design, as by means of it we can produce almost any effect on the mind. It should be such as to produce the one required, whether it be of rest or excitement, of cheerfulness or melancholy, of richness or poverty. In illustration of this a few examples of repetition are given in Figs. 7, 8, 9, 10 and 11. The motive in each case is supplied by the leaves and flowers of the Hepatica, a little plant which is a favorite with all who know it. A sketch of it showing its habit, and of separate leaves and flowers showing their form and construction, is given in Fig. 6. It will furnish the young designer with many useful forms which he should make free use of. First, in Fig. 7,

and in each square is placed a leaf, the mid-rib of which corresponds to the diameter of the square. If the leaves only are used, the result is not satisfactory on account of there being two empty triangular spaces between each two leaves. These



Fig. 6.

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EXERCISE.

The pupil should practise sketching leaves from nature in order to supply himself with material with which to work. In the space below draw conventional forms of some of the following: Buttercup leaves and flowers, geranium leaves and flowers, and clover, ivy, oak, maple, chestnut, virginia creeper, currant, raspberry or other familiar leaves.

should be filled up. For a suitable form, refer to the sketch. It will be seen that the one marked *a* is somewhat triangular in arrangement, and, after being made symmetrical, will answer the purpose very well. After placing this form in each of the

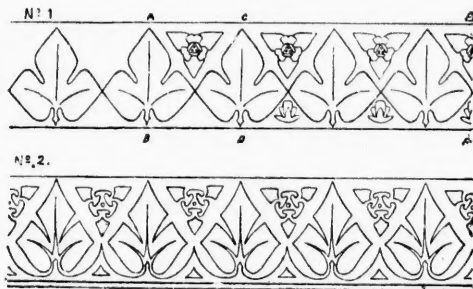


FIG. 7.

larger spaces, examine the design with the aid of a looking glass, as explained in the page of introductory remarks. Place the glass upright on the lines A B and C D and the effect of

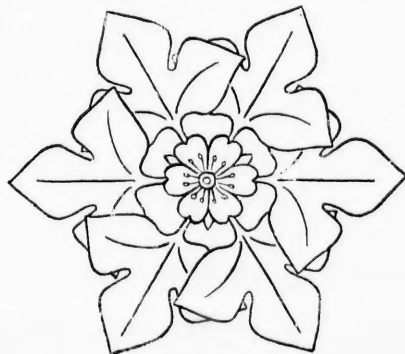


FIG. 8.

the addition of this form is at once seen. It does not improve the design in the least, but seems to spoil it by making it top heavy. Instead of erasing these last additions let us find a suitable form to place in the lower spaces in order to restore the balance. That marked *b* in Fig 6 will answer, and when it is placed in position we find that the balance is restored. We have also symmetry—hence repose, and we may perhaps be inclined to congratulate ourselves on the success of our first effort. Let us, however, criticise it from another standpoint. The conventional leaf is very much like the natural one, being at once recognized as a Hepatica leaf, and the eye is offended by the disjointed arrangement of the parts of the flower between which there is no connection whatever. In the natural plant the leaves and flowers all spring from the root or very

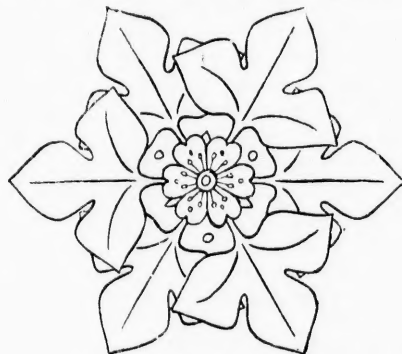


FIG. 9.

near it, and there is nothing pleasing in the thought of it being dismembered and arranged so methodically. In order to overcome these difficulties and to improve our design we must make the forms more geometrical, so that they will not suggest the Hepatica, but only some plant. They can be arranged in some such way as that shown in design No. 2, Fig. 7. Here symmetry and balance are present, and the forms are all united by the lower member of the border, thus giving to the whole a unity which is wanting in design No. 1.

In making a design by means of a radiate repetition of the unit, it is well to examine the unit or the plant from which it is derived, for a suggestion as to the geometric figure to use.

EXERCISE.

Using as a geometric basis the square and equilateral triangle repeated laterally and alternately as shown at the right of *f* Fig. 1 and as a motive the Hepatica, construct a design suitable for a border.

Fill up a square with conventional forms of Hepatica leaf and flower.

Fill up an octagon with conventional forms of Raspberry leaves.

It will very often be found that the numbers of its different parts are multiples of the same number; thus in the Hepatica there are three lobes to the leaf and the flowers have six petal-like sepals, and beneath these a whorl of three green leaves resembling a calyx, therefore the equilateral triangle, hexagon or duodecagon is a suitable form to use in connection with it, as by using either of them we are enabled to get perfect harmony between the parts of the design. In Figs. 8, 9 and 10 the hexagon is used and will be seen to be very appropriate. Figs. 8 and 9 illustrate the effect of the overlapping of forms. In Fig. 8 repose is wanting; the peculiar arrangement causes the eye to travel around and around towards the right. This is remedied by exposing the whole of the alternate leaves. But either of these arrangements is less satisfactory than one which does not in any way represent or suggest relief of the parts. Therefore some different treatment of the unit of repetition may with advantage be adopted; such as is shown in Fig. 10. The alternating form is one that would be suggested by the corresponding form in Fig. 9. By using this geometric



FIG. 10.

treatment, we are at liberty to alter the number of parts of the flower and many now show six projecting points suggesting sepals instead of three, the natural number, and the balance and symmetry are thus made more perfect than in Figs. 8 or 9.

Another advantage to be derived from this geometric treatment is that we can adopt the conventional form to any geometric plane that we may wish to use, and it thus becomes much more serviceable to us than if we were confined to the use of only one or two. The manner in which the hepatica can be used for filling up a square is shown in Fig. 11. Here the blossom is simplified, the suggested sepals are lengthened and the leaf is treated geometrically. The small circles used in this design and in Fig. 9 are very useful sometimes for filling up awkward gaps. They should, however, be used sparingly and with judgment.

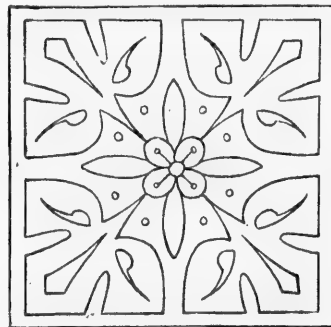


FIG. 11.

Being now possessed of an ornamental unit, or the ability to design one, we may turn our attention to the repetition of it with regard to a specific purpose—the decoration of certain surfaces or objects. But we must first know what to seek for and what to avoid in our design.

All decoration unless actually carved or moulded should be perfectly flat, that is, neither by arrangement, shading nor coloring should there be any simulation of relief or even a suggestion of it. Nothing can be much worse than the sham mouldings above sham panelling, and the sham cornices that we sometimes see executed in wall papers or stencilled and painted on walls. This remark concerning relief applies most forcibly to floor decorations, for here anything of the kind is exceedingly unpleasant. It may, of course, be carried to an extreme as is illustrated by Fig. 12, which shows the pattern

EXERCISE.

Construct a design for a border, using geometric forms only and any geometric basis.

Fill up selected geometric figures with purely geometric forms, introducing radiate regular, and radiate-alternate repetition

of two pavements, the first at Pompeii and the second at Rome. They would give one the impression that he was walking on the sharp corners of cubes imbedded in the floor. This disagreeable effect is produced by coloring, as the pupil can prove

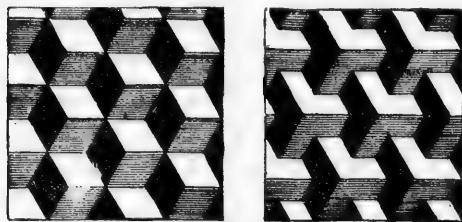


FIG. 12.

by experiment, using such colors as straw color, brick-red and black. Had the colors used been of equal intensity the effect would have been satisfactory.

Some of the designs given in this book seem to violate this principle, inasmuch as they are partially composed of interlacing bands, or overlapping forms, but such a treatment is admissible as there is nothing unpleasant about it. The relief is so slight as to be almost imperceptible at the first glance and therefore does not offend the eye.

A design for a floor covering should as a general thing be a radiate one, composed of a number of radiate forms properly grouped. We get a suggestion of this from nature, for, when looking down on the ground covered with growing flowers, we see the faces of the flowers as a rule, and they are in most cases radiate. If they were treated imitatively, any one possessing a refined nature and a love for flowers would be offended at the thought of crushing them under foot, for that would be the impression produced. A floor is used for walking on and is usually covered to some extent with furniture. It should, therefore, be decorated in such a way that there is nothing suggesting projectness to be avoided, and so that the eye is satisfied with the portions unobstructed, and there is no desire to remove an article of furniture to one side so as to expose the portion of the design covered by it. A floor may be covered with an oil cloth, a carpet, or tiles. The oil cloth is painted, the carpet is woven and the tiles, each one of which may be ornamented, are laid in cement on the floor. These facts must be taken into consideration when creating a design, and the ornamentation should be such as can be readily produced by

the processes of manufacture through which the material, article or fabric has to pass.

It may be that designs produced when practising the repetition of a unit about a point or line, are suitable for repetition to form a floor covering. To see if this is so take two pieces of looking-glass, hinge them together with a piece of cotton cloth pasted on the back, and stand them upright so that the silvered side of the glass corresponds to two adjacent sides of the geometric form containing the design. The effect of its repetition is thus seen, and it can be used as it is, modified to suit or, if unsuitable, discarded altogether. Two illustrations of the repetition of a unit produced without any regard to its use afterwards are given in Figs. 13 and 14. The first is a repetition of Fig. 10, and the second of Fig. 11. It will be seen that slight additions have been made to each to make it cover the surface satisfactorily.

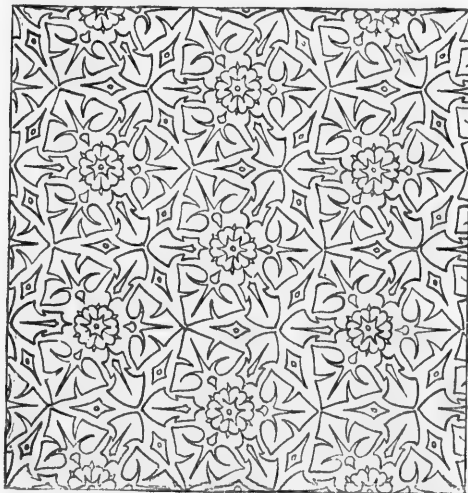


FIG. 13.

In Fig. 15 are shown two patterns for tiles, one purely geometric and the other a somewhat geometric treatment of a

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EXERCISE.

Make in a square a design suitable for an encaustic tile, using as a motive red clover leaves (see page 34 for sketch), and show the effect of its repetition.

Fill in a hexagon with a geometric pattern, and repeat it so as to cover surface.

flower form. They are shown repeated in Figs. 16 and 17. As to the use to which these designs could be put, Fig. 13 is

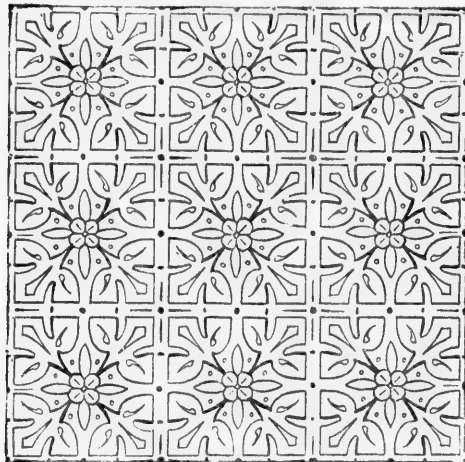


FIG. 14.

suitable for an oil-cloth or carpet; Fig. 14 for an oil-cloth or tiled floor; Fig. 16 for an oil-cloth, tiled floor or ceiling, and

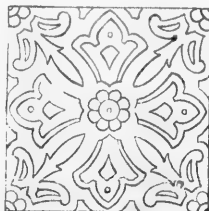
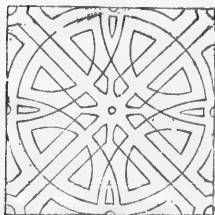


FIG. 15.

Fig. 17 for a carpet or oil-cloth. In Figs. 13 and 16 the

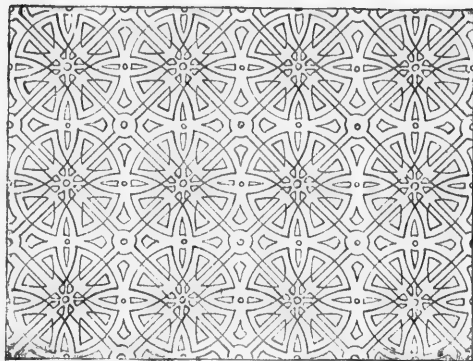


FIG. 16.

geometric plane used as a foundation is hidden so that it cannot be ascertained without a little investigation. This is

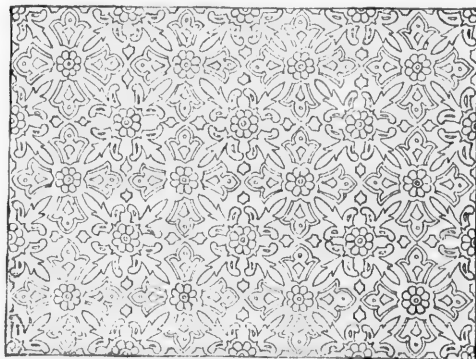


FIG. 17.

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EXERCISE.

Design a geometric pattern suitable for a floor covering, also a conventional one for a similar purpose, showing in each case a detached unit of repetition. Any natural form may be used as a motive for the latter.

their ornamentation, there is a danger of leaving rows of spots or figures that tell at a glance the nature of the geometric framework, and this detracts from the excellence of the design. By this repetition of an ornamented figure it is seen that we obtain other centres of repetition which tend to disguise the unit of repetition and make it difficult to decide which it is.

As a rule, patterns for floor oil cloths are composed of geometric planes such as squares, oblongs, octagons, etc., slightly ornamented, sprinkled somewhat promiscuously over the surface. Such an arrangement is very undesirable, as the ornamental forms are less conspicuous than the framework or geometric basis. This should be reversed. The ornaments should attract attention and the framework be disguised as much as possible, though not altogether lost to sight.

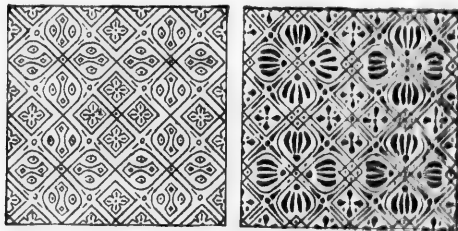


FIG. 18.

Two suggestions for oil cloth patterns are given in fig. 18. By looking at them with half-closed eyes it will be seen that portions of each are a little more conspicuous than the rest of the design, but the surface is covered evenly. This is a desirable feature. It is altogether likely that if they were reproduced in a size suitable for practical use, some detail would have to be added, but the general effect is shown and fully answers present purposes.

An arrangement of interlacing lines is often very satisfactory, indeed even more satisfactory for some purposes than a design composed of conventionalized natural forms. It enables us to cover surface far more evenly with less trouble than by any other means. For an illustration of this see figs. 16 and 19. The principal unit of repetition in each can be ascertained by tracing the continuous lines. Both of these designs are based upon intersecting circles.

Another design suitable for an oil cloth is given in fig. 20.

In some respects it is not as satisfactory as figs. 16 or 19, but would appear well if appropriately colored.

All floor coverings are greatly improved by the addition of a border, which gives an idea of completeness and unity to the whole. A carpet without a border is as unsatisfactory as a picture without a frame. The border should be composed of forms corresponding to those found in the centre of the carpet. If so treated, it belongs to and forms part of the carpet and the whole has the appearance of being designed specially for the room in which it is found. As a matter of fact, all ornament

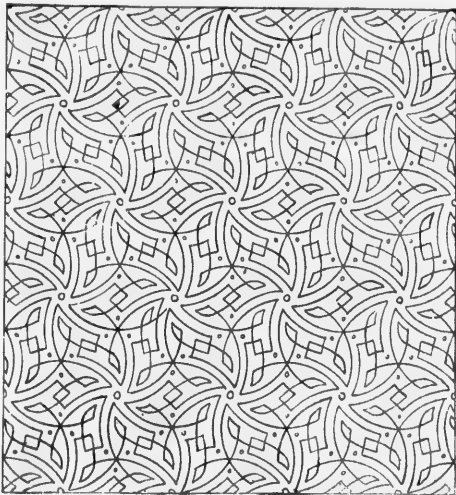


FIG. 19.

should be designed with special reference to its position and should not be manufactured by the yard. Thus rugs, finished all around and in one piece, are more satisfactory than a carpet sewn together and with a border sewn around it. Carpet borders are, of course, woven in long lengths and when cut and joined for a corner the pattern is broken and therefore spoiled.

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EXERCISE.

Design a pattern for a floor oil-cloth, using as a geometric basis octagons and squares.
Design a pattern for a tiled floor, the geometric basis to be selected by the pupil.

However, we have learned to put up with all these things as, unfortunately, most of us are hampered in the gratification of our artistic tastes by the need of practising economy. If we are limited to the use of carpets woven in lengths and sold by the yard, we should also have corner pieces to fit into the corners of the border. The effect of these is seen in fig. 21,

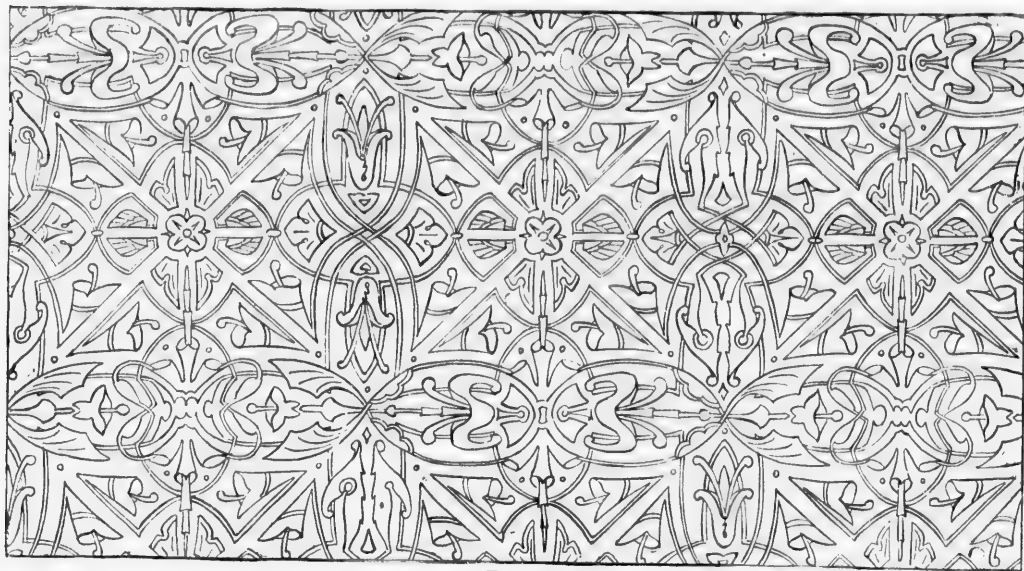


FIG. 20.

which is a suggestion for a carpet and border. If this border were cut across at random and joined so as to form a corner, the unsatisfactory appearance of the corner of an ordinary carpet border would be at once seen. Another suggestion for a carpet is given in fig. 22.

These patterns show the manner of distributing the masses

of the design rather than the actual form of the units of repetition and when enlarged to a size suitable for a carpet would have to be enriched very much, if not altered altogether.

Unless for a very large room, the pattern of a carpet should be comparatively small, repeating even four times in the width (twenty-seven or thirty-six inches). A carpet should serve as

a background for the furniture placed upon it, and if the pattern is too large, it becomes conspicuous and attracts attention that should be given to the other articles in the room.

As a usual thing, the walls of our dwellings, if decorated at all, are covered with wall paper which, as a manufactured article, is familiar to all. The pattern is printed upon it by

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EXERCISE.

Design two patterns suitable for a carpet, one geometric and the other conventional; the pupil to select his motive and geometric foundation.

means of carved blocks or rollers, there being a separate one for each color used.

It is thus evident that the process of manufacture is not adapted to the production of very fine or elaborate designs and that they should consequently be comparatively simple both in pattern and color. Apart from the advantages secured to the

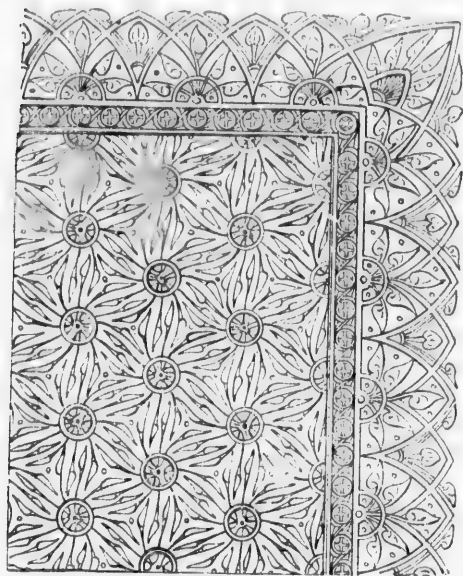


FIG. 21.

manufacturer by a simple pattern, it will be found by all who take the trouble to investigate the matter, that, other things being equal, the simplest designs are usually the best, though, strange to say, they are often the most expensive.

It has been remarked before that radiate forms are most suitable for the decoration of horizontal surfaces, as this is the appearance presented by very many growing flowers when

viewed from the position and direction from which we usually see them. Similarly, for the decoration of vertical surfaces, conventionalized side views, or elevations, of plants are usually most suitable. But radiate forms may also be used. For a motive we might suppose a wall to be covered with convolvulus vines in full bloom. The natural arrangement of stem, leaves and flowers, would suggest a suitable geometric framework and a method for the distribution of the masses of ornaments while the appearance of the leaves and flowers themselves

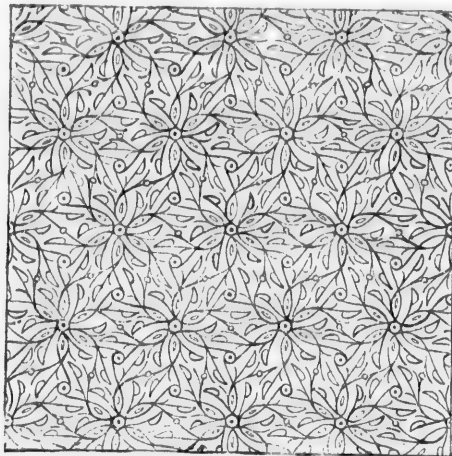


FIG. 22.

would, in many cases, furnish us with appropriate forms to use as clothing for the geometric framework.

All these remarks apply to a design intended to suggest some particular plant to the eye, but we must take into consideration the fact that, while conventionalized natural forms that can be identified are useful and interesting, a more geometric treatment of a natural form is most serviceable; indeed, in very much of the best historic ornaments, the forms used are almost purely geometrical, and suggest to the eye only some plant. Many of the designs given in this book are of

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EXERCISE.

Make a design for a stair carpet, also one for a floor, with a suitable border.

this character, though in some cases, some special plant form has supplied the motive.



FIG. 23.

All wall papers should have below an ornamental band extending three or even four feet above the wooden skirting, and above a broad border corresponding to the frieze of an

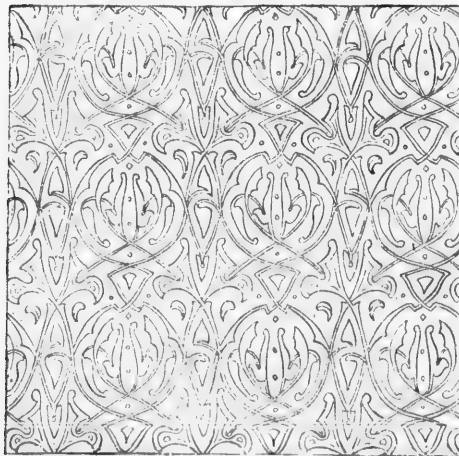


FIG. 24.

architectural order, and which should reach to the lowest member of the cornice, or to the junction of wall and ceiling.

The limits of this book preclude the possibility of giving suggestions for each of these ornamental features, and as the wall paper proper and its border are usually all that is found on our walls, they alone will be illustrated.

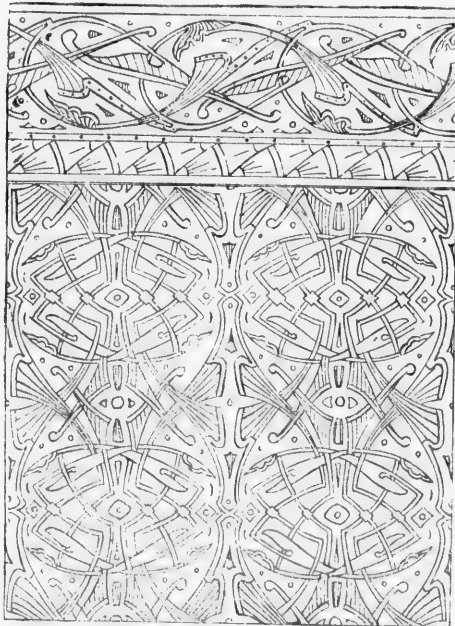


FIG. 25.

The construction of a design for wall paper is subject to the same rules as floor decorations. The surface should be covered evenly, and care should be exercised that there are no prominent rows of spots to divide the surface into geometrical spaces, or to lead the eye in a straight line from any one part of the pattern to the extreme edge. The best way to avoid

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EXERCISE.

Make design for a carpet and border, using conventional forms; also a design for wall paper and border.

this is to use for the geometric framework a combination of a many-sided polygon, such as a decagon or duodecagon, with other geometric figures having a smaller number of sides.

The border, as explained in connection with carpet patterns, should be composed of forms corresponding to those used in the design for the paper, and should not, as is usually the case, be selected from the stock of the dealer without regard to anything of the kind. As a matter of fact, every paper should have its own proper border, and should be accompanied by it and no other.

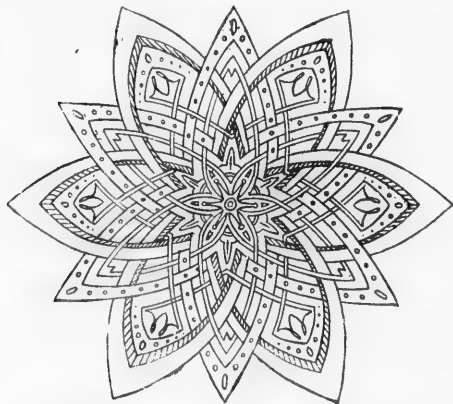


FIG. 26.

A suggestion for a wall paper is given in fig. 24, and a suitable border in fig. 23. They need no further explanation. Another suggestion for a wall paper and border is given in fig. 25.

It is only within the last few years that the decoration of ceilings in private dwellings and offices by means of colored flat ornaments, has become at all common, and the wonder is that the old familiar plaster centrepiece was not discarded long ago, for it cannot be compared to the colored ornament as regards beauty. It is true the plaster centrepiece was better than no ornament at all and it is still very suitable for some moulded and panelled ceilings, yet the advantages secured by

the colored ornaments are so many that it is safe to predict that, as people are educated to appreciate art, the use of plaster ornaments will be the exception and not the rule.

Apart from the appearance of cleanliness there is nothing to commend the white ceilings with which we are so familiar. The ceiling of a room is usually the only part of it that is unobstructed and is therefore more suitable for being covered with ornament, than either the floor or the walls, but through a desire to beautify it there is danger of overdoing it. Care

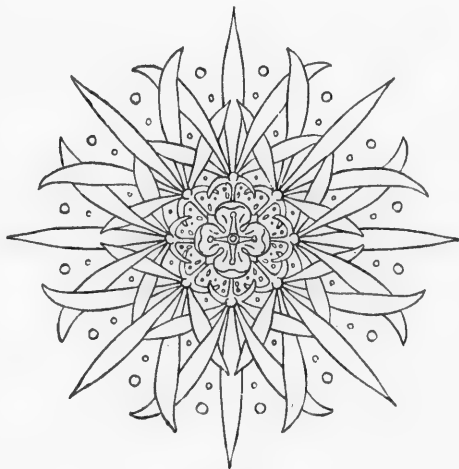


FIG. 27.

should be exercised not to have the ornament either too crowded or too conspicuous as to form or color. If there be a moulded cornice around a room it may be colored and a large colored centrepiece placed in the centre of the ceiling, or where the chandelier is hung. If there be two or more chandeliers, a radiate ornament may appropriately be placed around each one. Corner ornaments may be added, together with a border extending around the outside of the ceiling, and the

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EXERCISE.

Make two designs for wall papers with suitable borders.

exposed portion of the plaster may either be tinted with calimine or covered with a paper printed with a small, delicately colored geometric pattern.

Some very good ceiling decorations on paper can now be had from the dealers. They leave room for a display of much ingenuity and originality in their arrangement.

Should it be desirable to decorate a ceiling with hand and not machine work the patterns should be stencilled on and finished by hand where necessary.

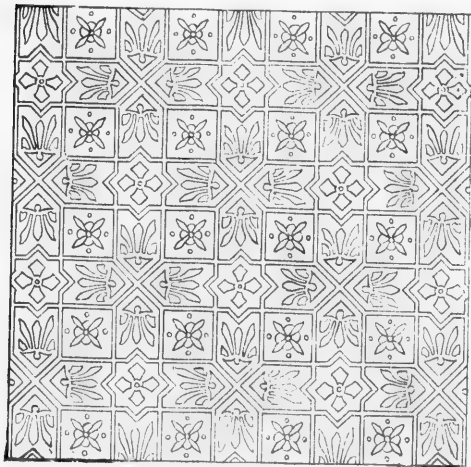


FIG. 28.

If a ceiling be divided by beams or timbers the faces of the beams themselves may be decorated by a running pattern and the spaces between ornamented either with an "all over" pattern or a radiate central ornament.

No natural forms, either flowers, fruit, foliage, animals or men, should be used in ceiling decoration and the same remark applies to the use of landscapes, than which nothing can be in much worse taste.

About the only thing to remember in designing a centre

piece is to have the forms and spaces increasing in size as they are farther removed from the centre.

Two suggestions are given in figures 26 and 27. The first is purely geometric and the second is conventional.

Designs intended for a material which will be thrown into folds require to be composed of stiff and somewhat inelegant forms as these when broken and bent by the folds appear much

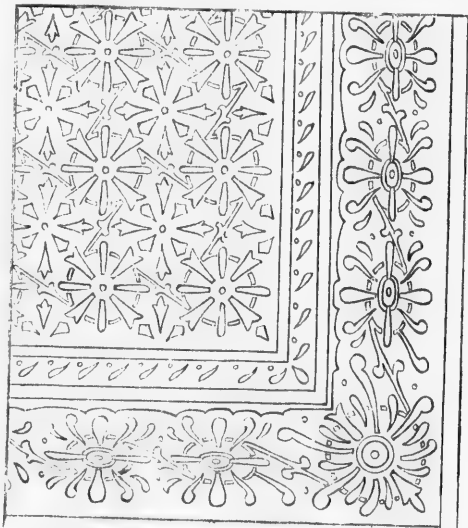


FIG. 29.

more beautiful than they really are, straight lines being changed to curves, and simple curves to compound curves. If beautiful curves were used in the design their beauty would be entirely lost. An experiment with a few lines on a piece of paper will prove this.

This remark applies to borders of table covers, handkerchiefs and table napkins as well as to curtains and dress goods.

A table cloth is usually covered with dishes or other

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EXERCISE.

Design a border suitable for the carpet pattern shown in figure 22.
Make designs for a painted centre ornament for a ceiling, and for corner pieces.

articles and, therefore, should be decorated with a small "all over" pattern, such as would be complete in a space three or four inches square, and nothing in the way of floral ornament should be attempted. Simple geometric patterns are the most satisfactory. The border should be much coarser than the centre of a table cover and composed largely of straight or stiff lines and simple curves.

A design for the centre part of table linen is given in figure 28 and a suggestion for a table cover and border in linen damask of one or two colors is given in figure 29.

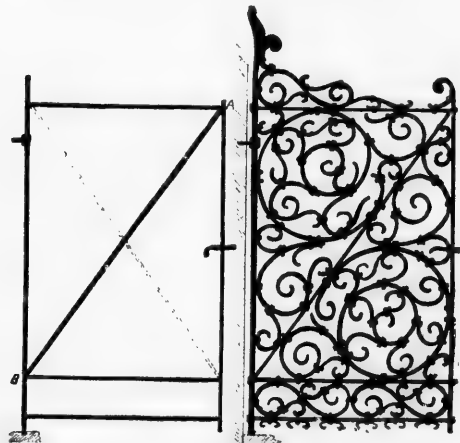


FIG. 30.

In constructing a pattern for ornamental iron work the first question to be considered is whether wrought or cast iron will be used. Viewed from an artistic stand-point, cast iron is much less valuable for ornamental purposes than wrought or hammered iron. It is brittle and must therefore be made much thicker and heavier than wrought iron in order to secure the same amount of strength. Its brittleness is increased by the frosty winters of our Canadian climate, and on this account it is not so suitable for outside works. Another objection is that for large articles it must be cast in sections which are ulti-

mately united by the top and bottom rail, as of a gate or fence, in order to form a continuous pattern, and it has therefore often to be adapted to the position it is to occupy at the risk of breaking and spoiling the design. This is the chief objection to all decorations that are "sold by the yard." Wrought iron on the contrary can be bent, twisted and hammered into the requisite shape, and so the design into which it is worked can be finished in any desirable manner, and is complete and not patched.

The chief objects to secure in a design to be executed in



FIG. 31.

iron are strength, simplicity, and appropriateness. The designs should be as simple as is compatible with strength; points should not be so prominent as to hurt the hands or tear the clothing of any one passing; if sharp points and angles are introduced they should be protected by the surrounding members; the different parts should be fastened together firmly so that the whole is almost as strong as if made of one piece, and no one part is easily bent or displaced.

Three suggestions for iron gates are given. They show clearly how wrought iron should be treated, and how united by means of bolts or rivets. In Fig. 30 the design is made up

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EXERCISE.

Make a design for a table cover with border, also one for a table napkin.

of square iron bars bent into spiral curves and bolted together, the only exceptions being the framework enclosing the ornamental work, and which actually serves the purpose of the geometric basis mentioned in reference to floor, wall and other designs.

Attention should be paid to the proper construction of this framework, else the resulting design, however beautiful, will be spoiled. The frame is composed of four iron bars forming an oblong, and a diagonal bar, AB, used to stiffen the whole, and keep it from sagging downwards at A. The object of placing it in this position rather than in that shown by the dotted lines is to transfer the weight of the gate to the lower part of the back upright, which should be stronger and thicker than the other parts of the gate. If placed as shown by the dotted lines, the weight would be borne by the upper part of the back upright and the hinge bedded into a stone pier, or



FIG. 32.

bolted to an iron one, and this hinge would in time be pulled away from its fastenings. If the gate be a large and heavy one it should be supported further by a wheel placed in the bottom of the front upright, and rolling on a circular iron track.

The designs shown in Fig. 31 are made up of iron bars bent, twisted and hammered into ornamental shapes at the ends. The ornamental plate in the left hand one might be replaced by an escutcheon and coat of arms, or name plate. The right hand design has no particular framework, but it is so light that no diagonal bars are needed, their place being filled by the ornamental part itself.

A simple cresting or railing is shown in Fig. 32. It needs no explanation.

No doubt most students of designing have examined a common gas bracket and know how it is constructed and what are its necessary parts, so that nothing need be said of it here.

In designing one, the pipe, joints, tap and burner should be arranged first and the ornamental work applied somewhat similarly to that in an iron gate. It should, besides beautifying the bracket, serve to strengthen it. The constructive portion may be ornamented by carving or engraving but so as not to hurt the hands, else it will be deemed a nuisance and worse than no ornament at all.

Two suggestions are given in figure 33.

A chandelier differs in construction but slightly from a bracket, so far as its necessary parts are concerned. It may have almost any number of arms or branches more than two, according to its size. Each arm might be treated somewhat like the gas bracket. In fact the whole might be considered to be composed of several brackets united to an ornamental pipe hanging from the ceiling.



FIG. 33.

If the chandelier is intended to carry coal oil lamps, nothing intended to imitate taps should be introduced as they would be vulgar.

On page 34 the pupil will find a number of sketches of natural leaves and flowers which will be useful to him and keep him supplied with material until he has an opportunity to make sketches for himself. He should also study the forms of snow-flakes and the ornaments traced by "Jack Frost" on the window pane. He will get there many a suggestion and many a beautiful form. He is recommended to study the forms of the scales and the bones, especially the bones of the head, of fishes, the wings of birds, and in fact all natural objects. They will furnish him with much good material. It must, however, be remembered that except in a very few cases they must all be conventionalized, or at least made symmetrical before they can be used.

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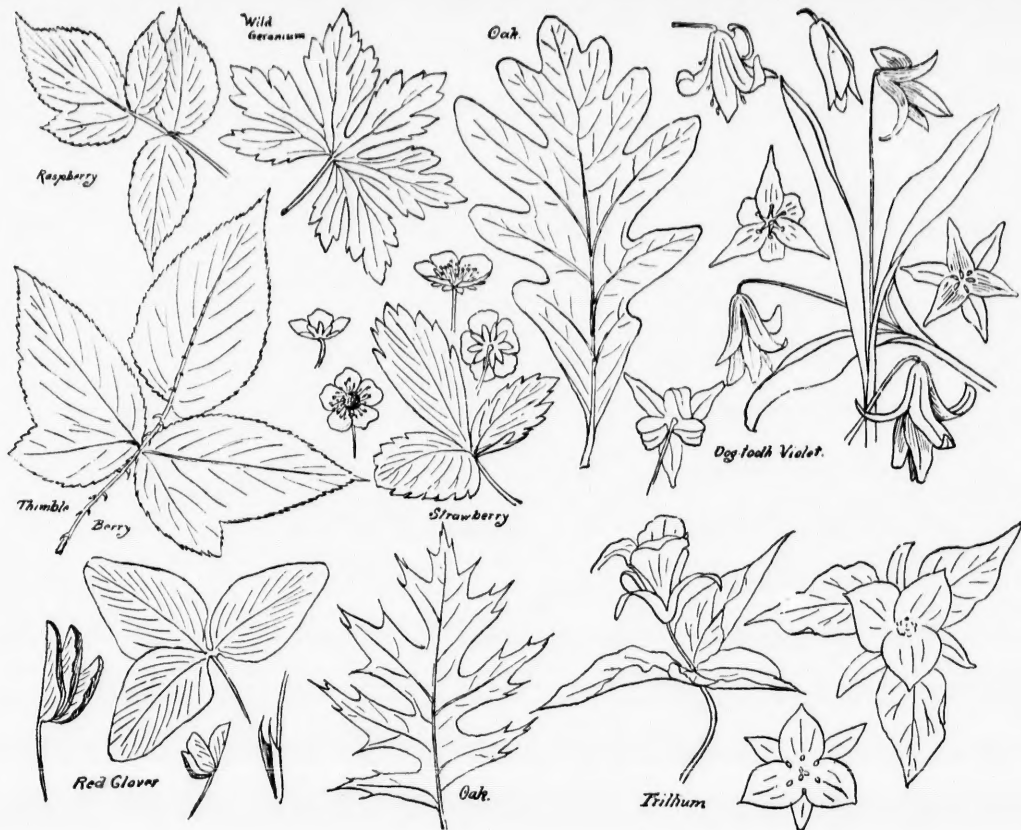


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EXERCISE.

Make designs for an iron gate, an iron fence, a gas bracket and chandelier for either gas or lamps.





PRINCIPLES OF DESIGN.

The following principles are selected from a work of a well-known authority and are based upon historic ornaments, so far as they show the principles upon which their inventors worked.

All ornament should be based upon some geometric arrangement of lines or planes.

This geometric basis should serve as a skeleton, to be clothed with ornamental forms, and should be disguised as much as possible. The spaces between the lines may be sub-divided, filled with ornaments, and the ornaments themselves may be enriched for closer inspection.

All ornament should be designed specially for the position it is intended to occupy and should be appropriate.

As a matter of fact no ornament can be designed quite at random. Attention must be paid to its surroundings, and certain patterns should accompany one another just as a handle should accompany a teacup. If separated both are incomplete and unsatisfactory. This last remark applies more to coloring than to form. The material in which a design is to be executed should influence to a great extent the pattern as to complexity of both form and color, and the student should be informed in a general way of the different processes of manufacture of carpets, oil cloths, wall papers, tiles, etc.

Natural forms if employed in ornaments should be conventionally treated and not imitated either as to form or arrangement.

All ornaments should be traceable back to a parent stem.

This principle is taught by nature itself, a tree being a beautiful illustration. There the leaves are all connected by branches to the trunk and the branches increase in thickness as they approach it. This suggestion should be kept constantly before the designer.

All junctions of straight and curved lines, or of two or more curved lines in main stems should be tangential.

Harmony of form consists in the proper balancing of straight with curved lines.

In order to be perfectly harmonious a design should be made up of horizontal, vertical and oblique straight lines, and curved lines.

Construction should be decorated, decoration should never be purposely constructed.

Decorations should never be arranged in imitation of mouldings, panels, pillars, etc., but should these architectural features be present they may, with advantage, be decorated in order to make them more prominent.

Imitations, such as the graining of woods, and of different kinds of marble, etc., are allowable only when the articles imitated would not be out of place.

Whether imitations are allowable at all, or just to what extent they are allowable, is perhaps a matter of opinion.

The writer contends that as ornaments they are no better than natural forms in decorations and, if used at all, should not be used as imitations but as suggestions, that is, they should be conventionalized. In much of the graining in our houses the imitation is not such as would deceive any body and is perhaps not very objectionable; but, usually, as far as graining is concerned, the more perfect the imitation the better people are pleased with it, and a house cannot receive a stronger recommendation than to be described as "grained throughout."

In matters outside of art, a sham fills the mind with disgust, and it is strange that we have learned to tolerate veneered furniture, stained woods, plated jewellery, indeed in some cases we have even learned to admire them. In many cases our satisfaction with these things is perhaps due to the bliss born of ignorance, as in the case of elm furniture stained and varnished and sold for walnut. As long as the fraud is undetected the elm is walnut and quite satisfactory to its possessor, but when it is discovered to be a sham it at once becomes an object of aversion. We, none of us, like to be cheated, but by encouraging these shams and imitations we greatly increase the risk of being cheated.

In very many instances the imitation of an object is about as costly as the object itself and there is nothing gained by the imitation, therefore it should not be used. Besides, in nearly every case, some real article or material could easily be substituted for an unsatisfactory imitation.

If this be so, then there is no need of imitations and the foregoing principle may be modified by stating that imitations are allowable only when the need of economy makes it necessary to imitate a material that should be used.

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